

In the Claims:

Please amend claims 1, 12, 13 and 24-34 as indicated below.

1. (Currently amended) A system, comprising:

one or more processing devices configured to implement:

an application;

a temporal volume configured to store temporal data; and

a temporal volume manager configured to:

receive an I/O request from the application, wherein the I/O request specifies one or more timestamps for temporal data on the temporal volume; and

perform a logical device-level temporal operation on the temporal volume in response to the I/O request;

wherein in said temporal operation, the temporal volume manger is configured to perform one or more of:

return temporal data to the application;

modify data on the temporal volume; and

generate a checkpoint of temporal data on the temporal volume.

2. (Original) The system as recited in claim 1, wherein the I/O request is a write request, and wherein, in said temporal operation, the temporal volume manager is further configured to write temporal data specified by the I/O request to the temporal volume.

3. (Original) The system as recited in claim 2, wherein, in said temporal operation, the temporal volume manager is further configured to generate a checkpoint of the temporal data on the temporal volume corresponding to a timestamp specified by the I/O request.

4. (Original) The system as recited in claim 1, wherein the I/O request is a read request, and wherein, in said temporal operation, the temporal volume manager is further configured to return temporal data specified by the I/O request to the application.

5. (Original) The system as recited in claim 1, wherein the I/O request specifies that a checkpoint of the temporal volume is to be created corresponding to a timestamp specified by the I/O request, and wherein, in said temporal operation, the temporal volume manager is further configured to generate the checkpoint of the temporal volume corresponding to the specified timestamp.

6. (Original) The system as recited in claim 1, wherein the temporal volume manager is further configured to generate checkpoints of the temporal volume at a time interval specified by an I/O request.

7. (Original) The system as recited in claim 1, wherein the I/O request specifies that a point-in-time image of the temporal volume is to be created corresponding to a timestamp specified by the I/O request, and wherein, in said temporal operation, the temporal volume manager is further configured to generate the point-in-time image of the temporal volume corresponding to the specified timestamp.

8. (Original) The system as recited in claim 1, wherein the I/O request specifies that a slice-in-time image of the temporal volume specified by two timestamps in the I/O

request is to be created, and wherein, in said temporal operation, the temporal volume manager is further configured to generate the slice-in-time image of the temporal volume specified by the two timestamps.

9. (Original) The system as recited in claim 1, wherein the I/O request specifies that a history of the temporal volume is to be truncated at a point in time specified by the I/O request, and wherein, in said temporal operation, the temporal volume manager is further configured to truncate the history of the temporal volume at the point in time specified by the I/O request.

10. (Original) The system as recited in claim 1, wherein the I/O request specifies that a history of the temporal volume is to be traversed to a point in time specified by the I/O request, and wherein the temporal volume manager is further configured to perform the temporal operation at the point in time in the history of the temporal volume specified by the I/O request.

11. (Original) The system as recited in claim 1, wherein the I/O request indicates one or more regions of the temporal volume on which the temporal operation is to be performed.

12. (Currently amended) A system, comprising:

means for receiving an I/O request for a temporal volume from an application,
wherein the I/O request specifies one or more timestamps for temporal
data on a temporal volume; and

means for performing a logical device-level temporal operation on the temporal
volume in response to the I/O request;

wherein the means for performing the temporal operation comprises one or more
of:

means for returning temporal data from the temporal volume to the application;

means for modifying data on the temporal volume; and

generating a checkpoint of temporal data on the temporal volume.

13. (Currently amended) A computer-implemented method, comprising:

a temporal volume manager receiving an I/O request from an application, wherein the I/O request specifies one or more timestamps for temporal data on a temporal volume; and

the temporal volume manager performing a logical device-level temporal operation on the temporal volume in response to the I/O request;

wherein performing the temporal operation comprises one or more of:

the temporal volume manager returning temporal data from the temporal volume to the application;

the temporal volume manager modifying data on the temporal volume;
and

the temporal volume manager generating a checkpoint of temporal data on the temporal volume.

14. (Original) The method as recited in claim 13, wherein the I/O request is a write request, and wherein said performing a logical device-level temporal operation on the temporal volume comprises the temporal volume manager writing temporal data

specified by the I/O request to the temporal volume.

15. (Original) The method as recited in claim 14, wherein said performing a logical device-level temporal operation on the temporal volume further comprises generating a checkpoint of the temporal data on the temporal volume corresponding to a timestamp specified by the I/O request.

16. (Original) The method as recited in claim 13, wherein the I/O request is a read request, and wherein said performing a logical device-level temporal operation on the temporal volume comprises returning temporal data specified by the I/O request to the application.

17. (Original) The method as recited in claim 13, wherein the I/O request specifies that a checkpoint of the temporal volume is to be created corresponding to a timestamp specified by the I/O request, and wherein said performing a logical device-level temporal operation on the temporal volume comprises generating the checkpoint of the temporal volume corresponding to the specified timestamp.

18. (Original) The method as recited in claim 13, further comprising the temporal volume manager generating checkpoints of the temporal volume at a time interval specified by an I/O request.

19. (Original) The method as recited in claim 13, wherein the I/O request specifies that a point-in-time image of the temporal volume is to be created corresponding to a timestamp specified by the I/O request, and wherein said performing a logical device-level temporal operation on the temporal volume comprises generating the point-in-time image of the temporal volume corresponding to the specified timestamp.

20. (Original) The method as recited in claim 13, wherein the I/O request specifies that a slice-in-time image of the temporal volume specified by two timestamps in the I/O request is to be created, and wherein said performing a logical device-level

temporal operation on the temporal volume comprises generating the slice-in-time image of the temporal volume specified by the two timestamps.

21. (Original) The method as recited in claim 13, wherein the I/O request specifies that a history of the temporal volume is to be truncated at a point in time specified by the I/O request, and wherein said performing a logical device-level temporal operation on the temporal volume comprises truncating the history of the temporal volume at the point in time specified by the I/O request.

22. (Original) The method as recited in claim 13, wherein the I/O request specifies that a history of the temporal volume is to be traversed to a point in time specified by the I/O request, and wherein said performing a logical device-level temporal operation on the temporal volume comprises performing the temporal operation at the point in time in the history of the temporal volume specified by the I/O request.

23. (Original) The method as recited in claim 13, further comprising performing the logical device-level temporal operation on one or more regions of the temporal volume indicated by the I/O request.

24. (Currently amended) A computer-readable storage accessible medium comprising program instructions, wherein the program instructions are configured to implement:

a temporal volume manager receiving an I/O request from an application, wherein the I/O request specifies one or more timestamps for temporal data on a temporal volume; and

the temporal volume manager performing a logical device-level temporal operation on the temporal volume in response to the I/O request;

wherein in performing the temporal operation, the program instructions are configured to implement one or more of:

the temporal volume manager returning temporal data from the temporal volume to the application;

the temporal volume manager modifying data on the temporal volume;
and

the temporal volume manager generating a checkpoint on the.

25. (Currently amended) The computer-readable storage ~~accessible~~ medium as recited in claim 24, wherein the I/O request is a write request, and wherein, in said performing a logical device-level temporal operation on the temporal volume, the program instructions are further configured to implement the temporal volume manager writing temporal data specified by the I/O request to the temporal volume.

26. (Currently amended) The computer-readable storage ~~accessible~~ medium as recited in claim 25, wherein, in said performing a logical device-level temporal operation on the temporal volume, the program instructions are further configured to implement generating a checkpoint of the temporal data on the temporal volume corresponding to a timestamp specified by the I/O request.

27. (Currently amended) The computer-readable storage ~~accessible~~ medium as recited in claim 24, wherein the I/O request is a read request, and wherein, in said performing a logical device-level temporal operation on the temporal volume, the program instructions are further configured to implement returning temporal data specified by the I/O request to the application.

28. (Currently amended) The computer-readable storage ~~accessible~~ medium as recited in claim 24, wherein the I/O request specifies that a checkpoint of the temporal

volume is to be created corresponding to a timestamp specified by the I/O request, and wherein, in said performing a logical device-level temporal operation on the temporal volume, the program instructions are further configured to implement generating the checkpoint of the temporal volume corresponding to the specified timestamp.

29. (Currently amended) The computer-readable storage ~~accessible~~ medium as recited in claim 24, wherein the program instructions are further configured to implement the temporal volume manager generating checkpoints of the temporal volume at a time interval specified by an I/O request.

30. (Currently amended) The computer-readable storage ~~accessible~~ medium as recited in claim 24, wherein the I/O request specifies that a point-in-time image of the temporal volume is to be created corresponding to a timestamp specified by the I/O request, and wherein, in said performing a logical device-level temporal operation on the temporal volume, the program instructions are further configured to implement generating the point-in-time image of the temporal volume corresponding to the specified timestamp.

31. (Currently amended) The computer-readable storage ~~accessible~~ medium as recited in claim 24, wherein the I/O request specifies that a slice-in-time image of the temporal volume specified by two timestamps in the I/O request is to be created, and wherein, in said performing a logical device-level temporal operation on the temporal volume, the program instructions are further configured to implement generating the slice-in-time image of the temporal volume specified by the two timestamps.

32. (Currently amended) The computer-readable storage ~~accessible~~ medium as recited in claim 24, wherein the I/O request specifies that a history of the temporal volume is to be truncated at a point in time specified by the I/O request, and wherein, in said performing a logical device-level temporal operation on the temporal volume, the program instructions are further configured to implement truncating the history of the temporal volume at the point in time specified by the I/O request.

33. (Currently amended) The computer-readable storage ~~accessible~~ medium as recited in claim 24, wherein the I/O request specifies that a history of the temporal volume is to be traversed to a point in time specified by the I/O request, and wherein, in said performing a logical device-level temporal operation on the temporal volume, the program instructions are further configured to implement performing the temporal operation at the point in time in the history of the temporal volume specified by the I/O request.

34. (Currently amended) The computer-readable storage ~~accessible~~ medium as recited in claim 24, wherein the program instructions are further configured to implement performing the logical device-level temporal operation on one or more regions of the temporal volume indicated by the I/O request.